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## PLANTS IN CARDIOLOGY



*Filipendula ulmaria* (L.) Maxim meadowsweet or queen of the meadow; and *Salix alba* L., white willow. From Gerard J. *The Herball or generall historie of plantes*. 2nd ed. London: Thomas Johnson, 1633.

### Aspirin

The success of quinine from 1630 onwards in treating malaria led to its use in other febrile conditions. So when the Reverend Edward Stone in 1763 noticed that powdered bark of the willow tree, *Salix* species (Salicaceae), had a bitter taste like quinine he used it as a substitute for the expensive imported cinchona bark. Its active principle—salicin, which is converted into salicylic acid in the body—was isolated in 1830 and introduced for the treatment of acute rheumatic fever by Dr Thomas Maclagan of Dundee in 1876. He used it in the erroneous belief, based on the Doctrine of Signatures, that because the disease was prevalent in cold damp localities *Salix*, a typical marsh plant, would be nature's remedy. None the less, he got the right answer.

Salicylic acid was originally produced in 1835 from salicylaldehyde found in *Spiraea ulmaria*, now *Filipendula ulmaria* (Rosaceae), the meadowsweet. It became freely available only with the development of a synthetic process in 1874. Its use as an "internal antiseptic" in typhoid fever revealed its antipyretic property. This, together with Maclagan's work, led to its use in rheumatic fever and other rheumatic diseases.

After gastric irritation prevented his father from taking sodium salicylate to treat his chronic arthritis Felix Hoffman, a chemist with the Bayer Company, produced acetylsalicylic acid in 1899 (it had been synthesised elsewhere in 1853). He gave it the trade name Aspirin (*a* for acetyl; *spir* for spiraea; and *in*, a common ending for drugs). This is now the generic name.

The family Salicaceae consists mainly of trees and shrubs from the northern temperate region and has only three genera. The Rosaceae are more numerous (over 100 genera and 3000 species) and more widely distributed. They vary from trees to herbs and include apples, plums, and strawberries. Some of the Rosaceae species yield vitamin C but otherwise neither the Rosaceae nor the Salicaceae contain other important medicines.

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